# MULTISPEC SOLENOID REPLACEMENT NARKOMED 3

## REPLACEMENT PROCEDURE

NOTE: Use proper ESD control during all removal and replacement procedures.

**Solenoid Removal:**

1. Turn the System Power switch to STANDBY and remove AC power from the machine.
2. Remove the two screws at the top of the analyzer and pump assembly back cover, and swing open the cover. See Figure 1.
3. Disconnect the 40-pin ribbon cable from J2 on the Andros interface PCB.
4. Disconnect the sample line from the hose barb on the end of the solenoid.
5. Disconnect the output hose from the pump.
6. Disconnect the 16-pin ribbon cable from J1 on the pump controller PCB.
7. Support the analyzer and pump assembly with one hand, and loosen the four captive mounting screws securing the assembly to the ventilator housing.
8. Remove the analyzer and pump assembly, place it on a clean and ESD protected work area.

**REPLACEMENT PROCEDURE (continued)**

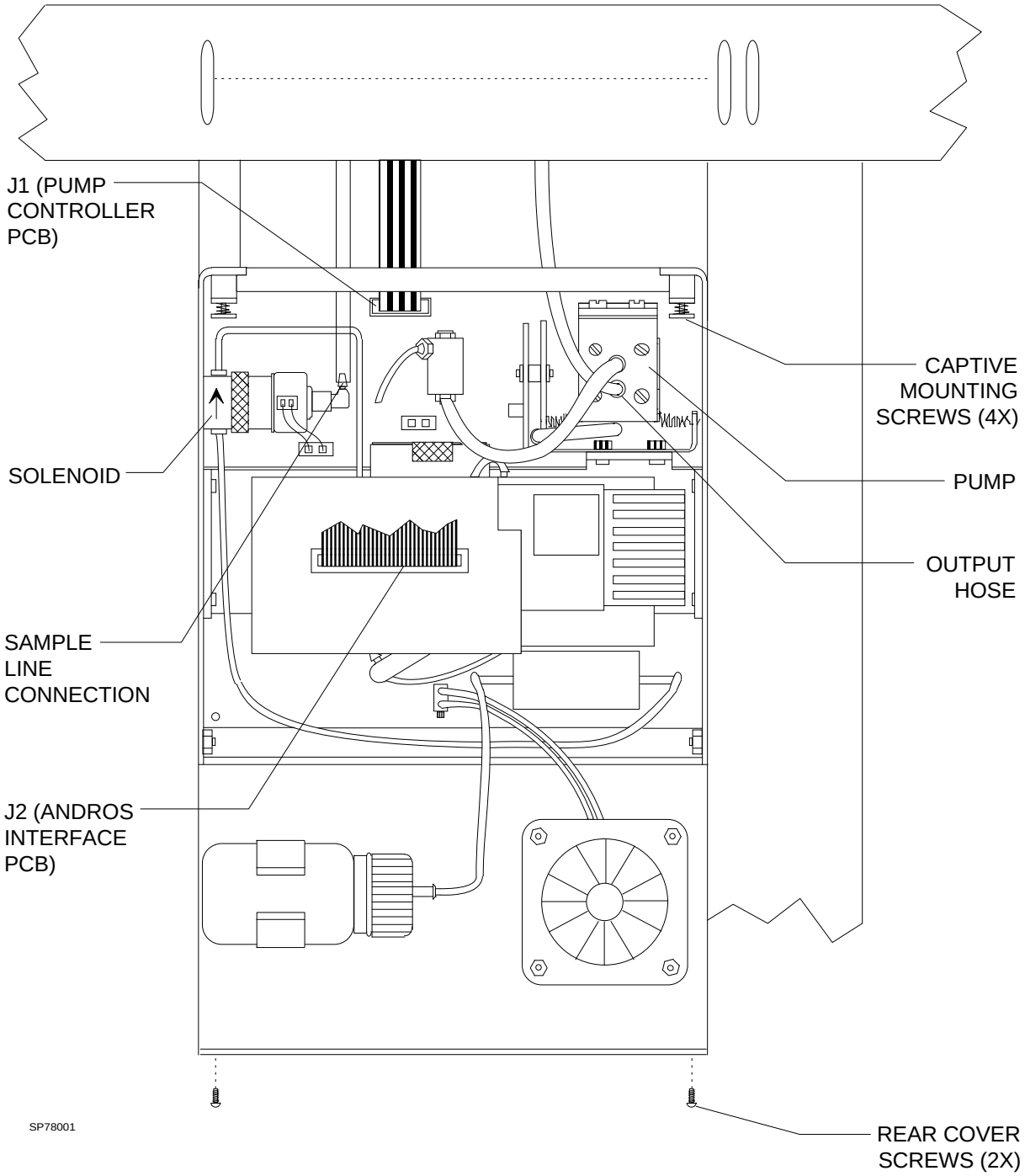


**Figure 1: MULTISPEC ANALYZER AND PUMP ASSEMBLY REMOVAL**

## REPLACEMENT PROCEDURE (continued)

9. Disconnect the elbow tube and interconnecting hose from the sample cell inlet of the Andros analyzer. See Figure 2.

10. Disconnect the solenoid wire harness from J6 on the pump controller PCB.

11. Remove the two screws holding the solenoid, carefully lift out the solenoid and disconnect the tubing from the "in" barb.

**Assembly of Replacement Solenoid:**

NOTE: Be sure to observe the position of the "in" and "out" ports on the solenoid.

12. Thread an L fitting half way into the top of the solenoid.

13. Apply one drop of Loctite #271 (red) to the threads and continue turning the L fitting into the solenoid. Ensure that the fitting is finally positioned to face parallel to the "out" port at the base of the solenoid. When the fitting is installed correctly, the position of the ports and the wire harness connection will be as shown in the illustration.

14. Disconnect the elbow tube from the "out" port of the original solenoid.

15. Remove the hose barb and rubber washer from the original solenoid.

16. Inspect the hose barb, washer and tubing, and replace any items that are not usable.

17. Install the hose barb and washer in the "out" port of the replacement solenoid.

18. Connect the elbow tube with its hose connector to the "out" barb.

19. Remove the hose barb and rubber washer from the "in" port of the original solenoid.

20. Install the hose barb and washer in the "in" port of the replacement solenoid.

21. Transfer the wiring harness to the replacement solenoid.

**REPLACEMENT PROCEDURE (continued)**

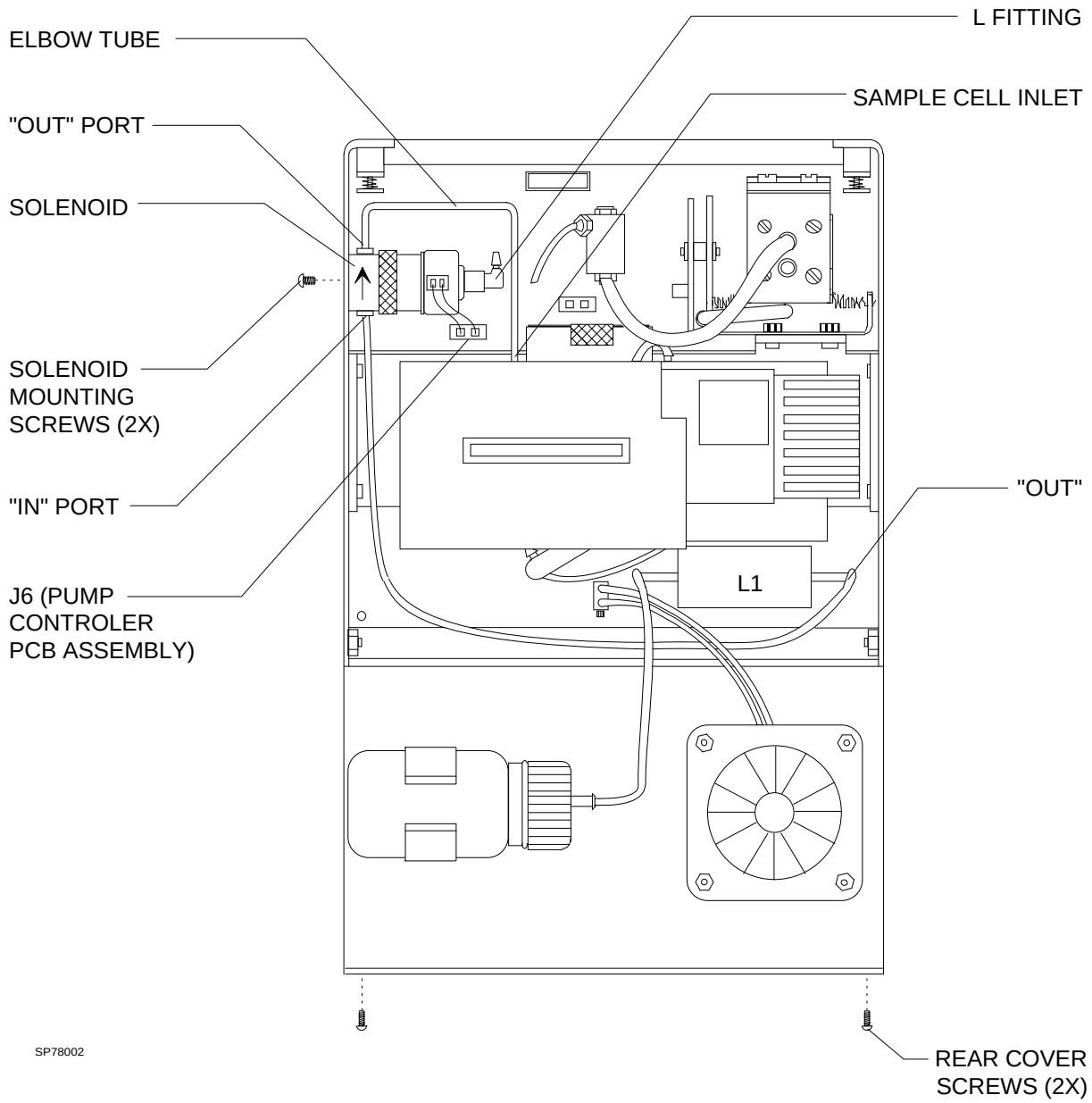


**Figure 2: ANALYZER AND PUMP ASSEMBLY SOLENOID CONNECTIONS**

## REPLACEMENT PROCEDURE (continued)

**Solenoid Installation:**

22. Connect the tube from L1 "out" on the pump controller PCB, to the "in" port on the replacement solenoid.

23. Fasten the replacement solenoid to the chassis with the two screws that were previously removed.

24. Join the wire harness to J6 on the pump controller PCB.

25. Connect the elbow tube to the sample cell of the Andros analyzer.

26. Position the analyzer and pump assembly at the rear of the NM3 and secure it to the ventilator housing with the four captive mounting screws.

27. Connect the 16-pin ribbon cable to J1 on the pump controller PCB.

28. Connect the long hose (from the ventilator box) to the output port of the pump. Ref. Figure 1.

29. Connect the sample hose to the top of the solenoid valve.

30. Connect the 40-pin ribbon cable to J2 on the Andros interface PCB.

31. Close the rear cover of the analyzer and pump assembly, and secure the cover with the two screws that were previously removed.

32. Plug the AC power cable into a live AC receptacle.

33. Turn the System Power switch to ON. Wait approximately three minutes for the flow to begin.

34. Connect a flowmeter test stand to the $CO_2$ exhaust port, and verify that the flowrate is 200 ml/min. If the flowrate is correct, turn the System Power switch to STANDBY. The procedure is complete.

    If the flowrate is not correct, perform the flowrate calibration procedure given in Field Service Procedure SP000002, Multispec Pump Replacement.

## PARTS REQUIRED

| PART DESCRIPTION | PART NUMBER |
|---|---|
| Valve, Solenoid, CS 823 | 4110906 |
| L-Fitting | 4110173 |
| Rubber Washer (2x) | 4102165 |
| Metal 1/16" Hose Barb Fitting (2x) | 4103445 |

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